A Text-Book of Physics. By G. A. WENTWORTH AND G. A. HILL. New York: Ginn & Co., 1905. Pp. 480. $1.15.

The advent of a new textbook of physics, or the appearance of a new edition of an old text, is greeted by every alert teacher of the subject with the hope that at last the much-longed-for ideal text has been written. The frontispiece of the revised edition of *A Text-Book of Physics*, by Wentworth and Hill, stimulates this aroused hope by the suggestion that the subject is to be vitalized by correlating theory and practical application in a manner that is stimulating and interest-holding, and, at the same time, thoroughly educational and disciplinary. Yet, there is little that is essentially new from this point till chap. 9, an addition to the old book, is reached. True, there are a few minor changes here and there, some of them in the right direction — for example, the experiment to illustrate the laws of fusion (p. 106); but most of them are altogether trivial, as the changing the lines in a diagram — e. g., Fig. 232. Speaking broadly, there is a great hiatus in the improvement from the frontispiece to chap. 9, which is entitled "Some Modern Applications of Physics."

Here our hopes are again raised by the expectation of finding much that can be used for reference to enlist and hold enthusiastic attention. While this hope is not completely devoid of justification, the full possibilities of many of the subjects treated are not reached. The selection of topics is perhaps not to be criticised. The presentation and discussion of some of them are excellent — e. g., "The Water Tube Boiler," and "Artificial Refrigeration." But some are handled in a most perfunctory manner, and one is left wondering why they were inserted at all. For example, the description of the air-brake consists of the bare naming of the parts, leaving the student with no more real idea of the mechanism than he had before. Here and there are such exasperatingly loose statements as these: "The piston descends, forming a vacuum between it and the head of the cylinder" (p. 449); "The kilowatt hour . . . . means a current which will perform 1,000 watts of work per hour" (p. 450). The body of the text itself is not free from this defect. For example, a whole page (7) is spent in distinguishing between weight and mass; then on p. 9: "$\text{Density} = \frac{\text{weight or mass}}{\text{volume}}$"!

It had been expected that such errors would be eliminated; that the discussion from a mathematical point of view of certain highly interesting phenomena, to the utter beclouding of their physical meaning, would be avoided (e. g., the discussion of circular motion, p. 210); that the pedagogical fault of including matter — though eminently worthy in itself, and deserving of extended discussion and varied illustration, yet almost wholly unrelated to the rest of the subject — would be shunned (e. g., "The Laws of Chemical Combination," p. 166); that some reality would be given certain most important laws by ample citation of experiment (e. g., "The Laws of Fusion," p. 106, or "The Laws of Ebullition," p. 111); that there would be some obviously desirable rearrangement of the subject-matter. But we are disappointed, and turn from the book with the feeling that a splendid opportunity immensely to improve a text that has done and is doing good service has been unpardonably neglected.

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